Using Multibeam Bathymetry to Characterize Rockfish Habitat in San Juan County, Washington Marine Reserves

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Abstract

The establishment of marine protected areas (MPAs) has recently become an important part of marine resource management efforts around the work and in San Juan County. Rockfish are economically important bottomfish whose populations have declined since the 1970's to such an extent that they are being considered threatened or endangered under the Endangered Species Act. During October of 2000, Moss Landing Marine Laboratories, Center for Habitat Studies surveyed five sites within the San Juan Archipelago (SJA) using a RESON 8101 multibeam bathymetric system. Both bathymetry and backscatter data were collected, although the system was maximized for the collection of accurate bathymetry. The main objective of this survey was to gather high-resolution bathymetric data to be used in mapping adult and juvenile rockfish habitat as part of an effort to identify potential marine reserves within the SJA. Sites were chosen based upon previous knowledge of the area's physical, oceanographic, and biological conditions. Surveys were undertaken within San Juan Channel, southern Haro Strait, and southern Rosario Strait. Areas of rugged rocky seafloor were identified using both qualitative and quantitative methods, and were interpreted to be potential adult and juvenile rockfish habitat. Potential habitat bridges radiating outward from protected areas were outlined based upon visual interpretation of multibeam imagery. Three voluntary no-take reserves (VNTZs), Pile Point, Charles Island, and Bell Island established by the San Juan County Marine Resource Committee in 1997, were evaluated based upon the presence of potential adult and juvenile rockfish habitat and the existence of possible habitat bridges that radiate outward from the protected areas. Results show that Pile Point, Charles Island, and Bell Island VNTZs appear to contain viable refugia for adult and juvenile rockfish and prospective habitat bridges that radiate outward from the VNTZs. Alternative reserve locations were also identified that may provide protection for species other than bottomfish.